

STATE OF SOUTH DAKOTA
 DEPARTMENT OF TRANSPORTATION
 PLANS FOR PROPOSED

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P-PH-B 0025(00)115	1	13

Plotting Date: 05/31/2022

PROJECT P-PH-B 0025(00)115
425th AVE, 429th AVE,
193rd ST, and 200th ST
CLARK & KINGSBURY COUNTIES

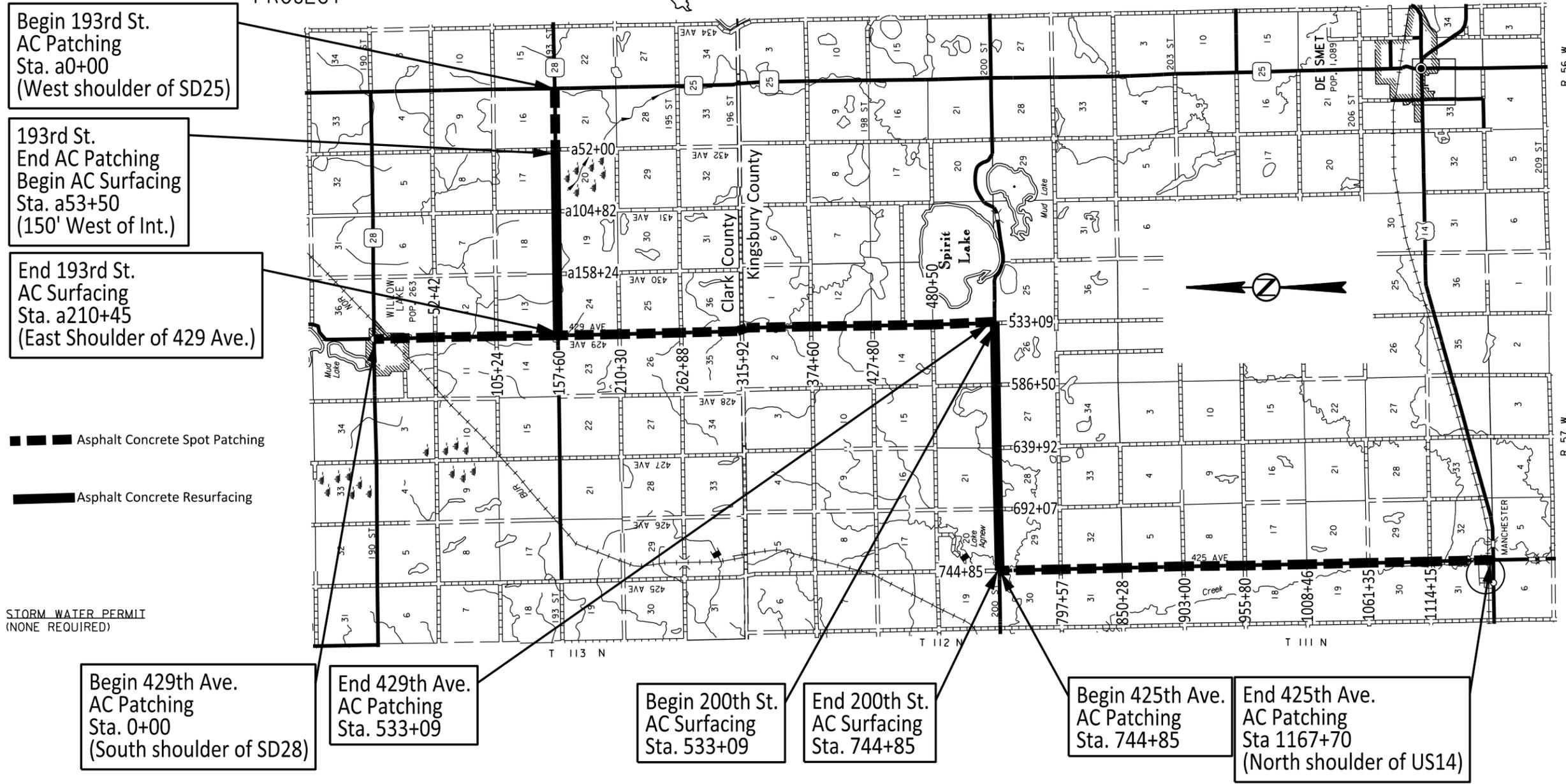
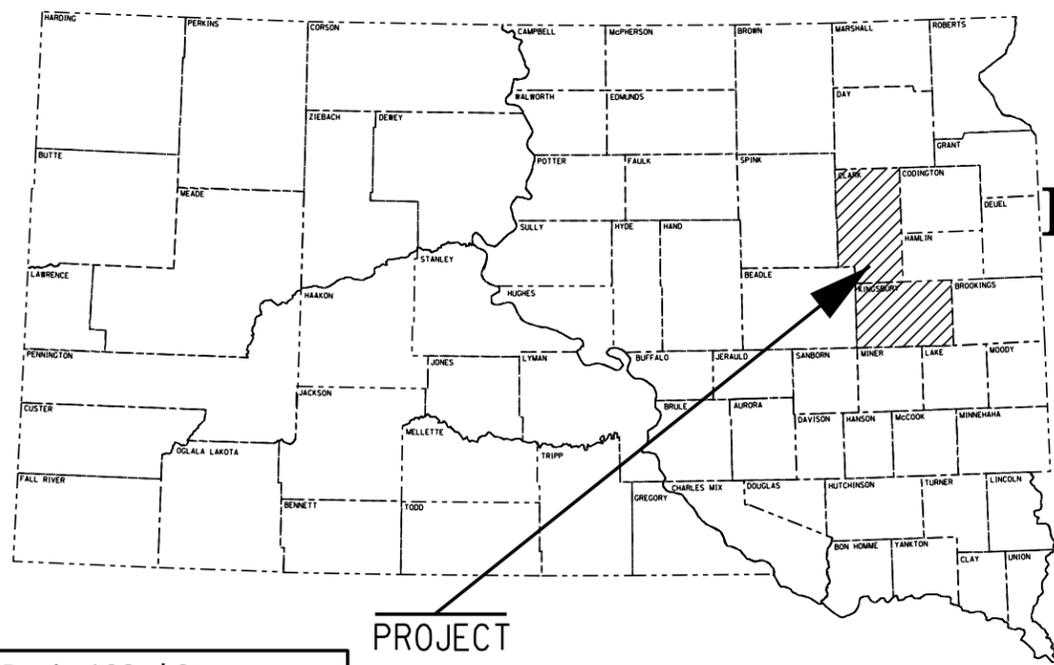
ASPHALT CONCRETE RESURFACING &
 SPOT ASPHALT CONCRETE PATCHING
 PCN 0956

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PLOT SCALE - 1" = 10000'

PLOT NAME - 1



Begin 193rd St.
 AC Patching
 Sta. a0+00
 (West shoulder of SD25)

193rd St.
 End AC Patching
 Begin AC Surfacing
 Sta. a53+50
 (150' West of Int.)

End 193rd St.
 AC Surfacing
 Sta. a210+45
 (East Shoulder of 429 Ave.)

- Asphalt Concrete Spot Patching
- Asphalt Concrete Resurfacing

STORM WATER PERMIT
 (NONE REQUIRED)

Begin 429th Ave.
 AC Patching
 Sta. 0+00
 (South shoulder of SD28)

End 429th Ave.
 AC Patching
 Sta. 533+09

Begin 200th St.
 AC Surfacing
 Sta. 533+09

End 200th St.
 AC Surfacing
 Sta. 744+85

Begin 425th Ave.
 AC Patching
 Sta. 744+85

End 425th Ave.
 AC Patching
 Sta 1167+70
 (North shoulder of US14)

PLOTTED FROM - TRAB17882

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ESTIMATE OF QUANTITIES AND ENVIRONMENTAL COMMITMENTS

STATE OF SOUTH DAKOTA	PROJECT	SHEET	TOTAL SHEETS
	P-PH-B 0025(00)115	2	13

ESTIMATE OF QUANTITIES

BID ITEM NUMBER	ITEM	QUANTITY	UNIT
009E0010	Mobilization	Lump Sum	LS
110E1010	Remove Asphalt Concrete Pavement	600.0	SqYd
120E0100	Unclassified Excavation, Digouts	400	CuYd
260E1010	Base Course	800.0	Ton
320E1200	Asphalt Concrete Composite	12,044.6	Ton
633E1200	High Build Waterborne Pavement Marking Paint, White	1,175	Gal
633E1205	High Build Waterborne Pavement Marking Paint, Yellow	550	Gal
633E1290	High Build Waterborne Pavement Marking Paint, Railroad Crossing	3	Each
634E0010	Flagging	130.0	Hour
634E0020	Pilot Car	50.0	Hour
634E0110	Traffic Control Signs	591.6	SqFt
634E0120	Traffic Control, Miscellaneous	Lump Sum	LS
634E0275	Type 3 Barricade	2	Each
634E0630	Temporary Pavement Marking	9.8	Mile

SPECIFICATIONS

Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications, and Special Provisions as included in the Proposal.

ENVIRONMENTAL COMMITMENTS

The SDDOT is committed to protecting the environment and uses Environmental Commitments as a communication tool for the Engineer and Contractor to ensure that attention is given to avoid, minimize, and/or mitigate an environmental impact. Environmental commitments to various agencies and the public have been made to secure approval of this project. An agency with permitting authority can delay a project if identified environmental impacts have not been adequately addressed. Unless otherwise designated, the Contractor's primary contact regarding matters associated with these commitments will be the Project Engineer. During construction, the Project Engineer will verify that the Contractor has met Environmental Commitment requirements. These environmental commitments are not subject to change without prior written approval from the SDDOT Environmental Office.

Additional guidance on SDDOT's Environmental Commitments can be accessed through the Environmental Procedures Manual found at: <https://dot.sd.gov/media/documents/EnvironmentalProceduresManual.pdf>

For questions regarding change orders in the field that may have an effect on an Environmental Commitment, the Project Engineer will contact the Environmental Engineer at 605-773-3180 or 605-773-4336 to determine whether an environmental analysis and/or resource agency coordination is necessary.

Once construction is complete, the Project Engineer will review all environmental commitments for the project and document their completion.

COMMITMENT B: FEDERALLY THREATENED, ENDANGERED, AND PROTECTED SPECIES

COMMITMENT B2: WHOOPING CRANE

The Whooping Crane is a spring and fall migratory bird in South Dakota that is about 5 feet tall and typically stops on wetlands, rivers, and agricultural lands along their migration route. An adult Whooping Crane is white with a red crown and a long, dark, pointed bill. Immature Whooping Cranes are cinnamon brown. While in flight, their long necks are kept straight and their long dark legs trail behind. Adult Whooping Cranes' black wing tips are visible during flight.

Action Taken/Required:

Harassment or other measures to cause the Whooping Crane to leave the site is a violation of the Endangered Species Act. If a Whooping Crane is sighted roosting in the vicinity of the project, borrow pits, or staging areas associated with the project, cease construction activities in the affected area until the Whooping Crane departs and immediately contact the Project Engineer. The Project Engineer will contact the Environmental Office so that the sighting can be reported to USFWS.

COMMITMENT C: WATER SOURCE

The Contractor will not withdraw water with equipment previously used outside the State of South Dakota or previously used in aquatic invasive species (AIS) positive waters within South Dakota without prior approval from the SDDOT Environmental Office. To prevent and control the introduction and spread of invasive species into the project vicinity, all equipment will be power washed with hot water (≥ 140 °F) and completely dried for a minimum of 7 days prior to subsequent use. South Dakota administrative rule 41:10:04:02 forbids the possession and transport of AIS; therefore, all attached dirt, mud, debris and vegetation must be removed and all compartments and tanks capable of holding standing water must be drained. This includes, but is not limited to, all equipment, pumps, lines, hoses and holding tanks.

The Contractor will not withdraw water directly from streams of the James, Big Sioux, and Vermillion watersheds without prior approval from the SDDOT Environmental Office.

Action Taken/Required:

The Contractor will obtain the necessary permits from the regulatory agencies such as the South Dakota Department of Agriculture and Natural Resources (DANR) and the United States Army Corps of Engineers (USACE) prior to water extraction activities.

Additional information and mapping of water sources impacted by Aquatic Invasive Species in South Dakota can be accessed at: <http://sdleastwanted.com/maps/default.aspx>

< [South Dakota Administrative Rule 41:10:04 Aquatic Invasive Species: https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04](https://sdlegislature.gov/rules/DisplayRule.aspx?Rule=41:10:04) >

COMMITMENT E: STORM WATER

Construction activities constitute less than 1 acre of disturbance.

Action Taken/Required:

At a minimum and regardless of project size, appropriate erosion and sediment control measures must be installed to control the discharge of pollutants from the construction site.

COMMITMENT H: WASTE DISPOSAL SITE

The Contractor will furnish a site(s) for the disposal of construction and/or demolition debris generated by this project.

Action Taken/Required:

Construction and/or demolition debris may not be disposed of within the Public ROW.

The waste disposal site(s) will be managed and reclaimed in accordance with the following from the General Permit for Construction/Demolition Debris Disposal Under the South Dakota Waste Management Program issued by the Department of Agriculture and Natural Resources.

The waste disposal site(s) will not be located in a wetland, within 200 feet of surface water, or in an area that adversely affects wildlife, recreation, aesthetic value of an area, or any threatened or endangered species, as approved by the Environmental Office and the Project Engineer.

If the waste disposal site(s) is located such that it is within view of any ROW, the following additional requirements will apply:

1. Construction and/or demolition debris consisting of concrete, asphalt concrete, or other similar materials will be buried in a trench separate from wood debris. The final cover over the construction and/or demolition debris will consist of a minimum of 1 foot of soil capable of supporting vegetation. Waste disposal sites provided outside of the Public ROW will be seeded in accordance with Natural Resources Conservation Service recommendations. The seeding recommendations may be obtained through the appropriate County NRCS Office. The Contractor will control the access to waste disposal sites not within the Public ROW with fences, gates, and placement of a sign or signs at the entrance to the site stating, "No Dumping Allowed".

2. Concrete and asphalt concrete debris may be stockpiled within view of the ROW for a period not to exceed the duration of the project. Prior to project completion, the waste will be removed from view of the ROW or buried, and the waste disposal site reclaimed as noted above.

The above requirements will not apply to waste disposal sites that are covered by an individual solid waste permit as specified in SDCL 34A-6-58, SDCL 34A-6-1.13, and ARSD 74:27:10:06.

Failure to comply with the requirements stated above may result in civil penalties in accordance with South Dakota Solid Waste Law, SDCL 34A-6-1.31.

All costs associated with furnishing waste disposal site(s), disposing of waste, maintaining control of access (fence, gates, and signs), and reclamation of the waste disposal site(s) will be incidental to the various contract items.

COMMITMENT I: HISTORIC PRESERVATION OFFICE CLEARANCES

State Historic Preservation Office (SHPO or THPO) concurrence has not been obtained for this project.

Action Taken/Required:

All earth disturbing activities require a cultural resource review prior to scheduling the pre-construction meeting. This work includes but is not limited to: Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas.

The Contractor will arrange and pay for a record search and when necessary, a cultural resource survey. The Contractor has the option to contact the state Archaeological Research Center (ARC) at 605-394-1936 or another qualified archaeologist, to obtain either a records search or a cultural resources survey. A record search might be sufficient for review if the site was previously surveyed; however, a cultural resources survey may need to be conducted by a qualified archaeologist.

The Contractor will provide ARC with the following: a topographical map or aerial view in which the site is clearly outlined, site dimensions, project number, and PCN. If applicable, provide evidence that the site has been previously disturbed by farming, mining, or construction activities with a landowner statement that artifacts have not been found on the site.

The Contractor will submit the cultural resources survey report to SDDOT Environmental Office, 700 East Broadway Avenue, Pierre, SD 57501-2586. SDDOT will submit the information to the appropriate SHPO/THPO. Allow **30 Days** from the date this information is submitted to the Environmental Engineer for SHPO/THPO review.

In the event of an inadvertent discovery of human remains, funerary objects, or if evidence of cultural resources is identified during project construction activities, then such activities within 100 feet of the inadvertent discovery will immediately cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Office, who will contact the appropriate SHPO/THPO within 48 hours of the discovery to determine an appropriate course of action.

The Contractor is responsible for obtaining any additional permits and clearances for Contractor furnished material sources, material processing sites, stockpile sites, storage areas, plant sites, and waste areas that affect wetlands, threatened and endangered species, or waterways. The Contractor will not utilize a site known or suspected of having contaminated soil or water. The Contractor will provide the required permits and clearances to the Project Engineer at the preconstruction meeting.

TABLE OF ASPHALT CONCRETE COMPOSITE SPOT PATCHING AND ASPHALT CONCRETE RESURFACING

Type of surfacing work	County	Road	Begin Station	End Station	Distance	* Width	Cu Ft	Asphalt Concrete Composite Tons
Asphalt Concrete Spot Patching	Clark	429th Ave	64+00	68+00	400	24	1250	90.6
	Clark	429th Ave	78+00	100+00	2200	24	6875	498.4
	Clark	429th Ave	128+50	133+50	500	24	1563	113.3
	Clark	429th Ave	157+00	177+00	2000	24	6250	453.1
	Clark	429th Ave	201+00	206+80	580	24	1813	131.4
	Clark	429th Ave	226+90	230+80	390	24	1219	88.4
	Clark	429th Ave	259+00	262+50	350	24	1094	79.3
	Clark	429th Ave	275+50	285+50	1000	24	3125	226.6
	Clark	429th Ave	307+70	316+00	830	24	2594	188.0
					8250			1869.1
Asphalt Concrete Spot Patching	Kingsbury	429th Ave	316+00	323+20	720	24	2250	163.1
	Kingsbury	429th Ave	327+80	333+80	600	24	1875	135.9
	Kingsbury	429th Ave	339+70	348+50	880	24	2750	199.4
	Kingsbury	429th Ave	358+00	360+00	200	24	625	45.3
	Kingsbury	429th Ave	402+20	404+00	180	24	563	40.8
	Kingsbury	429th Ave	439+00	444+00	500	24	1563	113.3
	Kingsbury	429th Ave	460+00	470+80	1080	24	3375	244.7
	Kingsbury	429th Ave	488+90	491+80	290	24	906	65.7
					4450			1008.2
Asphalt Concrete Resurfacing	Kingsbury	200th St	533+09	744+85	21176	25	68822	4989.6
					21176			4989.6
Asphalt Concrete Spot Patching	Kingsbury	425th Ave	748+70 ***	751+00 ***	230	25	748	54.2
	Kingsbury	425th Ave	965+50	974+00	850	25	2763	200.3
	Kingsbury	425th Ave	986+50	989+50	300	25	975	70.7
					1380			325.2
Asphalt Concrete Spot Patching	Clark	193rd St (a Stationing)	Locations to be determined.		1000	24	3125	226.6
					1000			226.6
Asphalt Concrete Resurfacing	Clark	193rd St (a Stationing)	53+50	210+45	15695	24	49047	3555.9
					15695			3555.9
Asphalt Concrete Digout Repair	Clark	# 193rd St (a Stationing)						70.0
								70.0

* Top Width of Roadway. Bottom width will be 1' wider on each side to allow for 1' sluff.

*** Spot Patching will be limited to the ends of the bridge. Bridge deck will not receive any patching.

Digout Repair is shown on 193rd St, however repairs could be located elsewhere.

Project Total 12044.6

Information Summary

Total Asphalt Concrete Composite Spot Patching	3,499.1	Ton
Total Asphalt Concrete Composite Resurfacing	8,545.5	Ton
Total Length of Asphalt Concrete Spot Patching	15,080	Ft
Total Length of Asphalt Concrete Resurfacing	36,871	Ft
Total Asphalt Concrete Composite Clark County	5,721.6	Ton
Total Asphalt Concrete Composite Kingsbury County	6,323.0	Ton

SCOPE OF WORK

Work on this project involves placement of Asphalt Concrete Composite. On 193rd Street and 200th Street a continuous 1.5" thick lift of Asphalt Concrete Composite will be placed. On 193rd Street, 425th Avenue and 429th Avenue, spot patching with Asphalt Concrete Composite will be required. Pavement markings will be completed on the entire 26.1 miles of roadway.

SEQUENCE OF OPERATIONS

The Contractor will submit a sequence of operations for approval two weeks prior to the preconstruction meeting. If changes to the sequence of operations are proposed during the project, these must be submitted for review a minimum of one week prior to potential implementation. Approval for changes to the sequence of operations will only be allowed when the proposed changes meet with the Department's intent for traffic control and sequencing of the work.

GENERAL TRAFFIC CONTROL

Existing guide, route, informational logo, regulatory, and warning signs will be temporarily reset and maintained during construction. Removing, relocating, covering, salvaging, and resetting of existing traffic control devices, including delineation, will be the responsibility of the Contractor. Cost for this work will be incidental to the contract unit prices for the various items unless otherwise specified in the plans. Any delineators and signs damaged or lost will be replaced by the Contractor at no cost to the State.

All temporary traffic control sign locations will be set in the field by the Contractor and verified by the Engineer prior to installation.

Portable sign supports will not be located on sidewalks, bicycle facilities, or other areas designated for pedestrian or bicycle traffic.

All construction operations will be conducted in the general direction of traffic movement.

If there is a discrepancy between the traffic control plans, standard plates, and the MUTCD, whichever is more stringent will be used, as determined by the Engineer.

Unless otherwise stated in these plans, work will not be allowed during hours of darkness.

Fixed location signing placed more than 4 calendar days prior to the start of construction will be covered or laid down until the time of construction. The covers must be approved by the Engineer prior to installation. The cost of materials, labor, and equipment necessary to complete this work will be incidental to other contract items. No separate payment will be made.

All fixed location signs, sign posts, and breakaway bases will be removed within 7 calendar days following pavement marking.

All haul trucks will be equipped with an additional flashing amber light that is visible from the backside of the haul truck. The costs for the flashing amber lights will be incidental to the various related contract items.

The Contractor will furnish, install, maintain, and remove TRUCK CROSSING (W8-6) signs daily. The TRUCK CROSSING signs will be displayed always when haul vehicles are hauling material. When hauling conditions no longer exist, the signs will be covered or removed from view. The exact number and location will be determined during construction. Payment for additional signs will be based on the contract unit price per square foot for "Traffic Control Signs".

A mobile work operation will be allowed provided the pavement marking can be completed satisfactorily by a continuously moving work operation. A mobile work operation will require approval by the Engineer.

FLAGGING

A Pilot Car will be utilized when Asphalt Concrete Resurfacing on 193rd and 200th Streets. A Pilot Car may also be utilized for the longer patching areas on 429th Avenue.

Operations will be conducted so that the traveling public will not have to wait longer than 15 minutes at the flagger station.

Included in the Estimate of Quantities are WAIT FOLLOW PILOT CAR signs for use on low volume intersecting roads as determined by the Engineer. WAIT FOLLOW PILOT CAR signs will not block the view of the stop sign.



It is required that the flaggers and pilot car operators be able to communicate with one another. If an emergency vehicle needs to pass through the project, the Contractor will be required to expedite traffic movement. All costs associated with this will be incidental to the contract unit price per hour for "Flagging".

ITEMIZED LIST FOR TRAFFIC CONTROL SIGNS

SIGN CODE	SIGN DESCRIPTION	CONVENTIONAL ROAD			
		NUMBER	SIGN SIZE	SQFT PER SIGN	SQFT
W8-1	BUMP	6	48" x 48"	16.0	96.0
W8-6	TRUCK CROSSING	4	48" x 48"	16.0	64.0
W8-11	UNEVEN LANES	4	48" x 48"	16.0	64.0
W20-1	ROAD WORK AHEAD	6	48" x 48"	16.0	96.0
W20-4	ONE LANE ROAD AHEAD	4	48" x 48"	16.0	64.0
W20-7	FLAGGER (symbol)	4	48" x 48"	16.0	64.0
W21-2	FRESH OIL	4	48" x 48"	16.0	64.0
SPECIAL	WAIT FOLLOW PILOT CAR	2	30" x 18"	3.8	7.6
G20-1	ROAD WORK NEXT 3 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 4 MILES	4	36" x 18"	4.5	18.0
G20-1	ROAD WORK NEXT 7 MILES	1	36" x 18"	4.5	4.5
G20-1	ROAD WORK NEXT 8 MILES	2	36" x 18"	4.5	9.0
G20-1	ROAD WORK NEXT 10 MILES	2	36" x 18"	4.5	9.0
G20-2	END ROAD WORK	6	36" x 18"	4.5	27.0
		CONVENTIONAL ROAD			
		TRAFFIC CONTROL SIGNS SQFT			591.6

SHOULDER CLEARING

Prior to asphalt concrete spot patching and resurfacing, Clark and Kingsbury County personnel may mow the shoulders.

The Contractor will notify the respective Clark and Kingsbury County Highway Superintendents at least two weeks prior to beginning work on this project so County personnel can mow along the shoulder and inslopes.

Clark County Highway Superintendent Ryan Eggleston (605-532-3684)
Kingsbury County Highway Superintendent David Sorenson (605-854-3491)

The Huron Area Office shall also be notified following completion of notifications to Clark and Kingsbury Counties (605-353-7140).

UNCLASSIFIED EXCAVATION, DIGOUTS

The locations and extent of digout areas will be determined in the field by the Engineer. The backfilling material for the digouts will be Asphalt Concrete Composite and Base Course. The depth of asphalt will be 2 inch thickness.

Included in the Estimate of Quantities are 400 cubic yards of Unclassified Excavation, Digouts and 600 square yards of Remove Asphalt Concrete Pavement for the removal of asphalt and unstable material throughout the project. Digouts are expected on 193rd St., however repairs may be located elsewhere.

Included in the Estimate of Quantities are 800 tons of Base Course and 70 tons of Asphalt Concrete Composite for backfill of Unclassified Excavation, Digouts.

The digouts will be extended to the shoulder and backfilled with granular material that will daylight to the inslope to allow water to escape the subsurface.

ASPHALT CONCRETE COMPOSITE

The mineral aggregate for asphalt concrete composite will conform to Section 321 - Class E, Type 1 or Type 2.

A Flush Seal will not be required on this project.

Asphalt for tack SS-1h or CSS-1h will be applied prior to each lift of Asphalt Concrete Composite. Asphalt for tack will be applied at a rate of 0.09 gallons per square yard on existing pavement or milled asphalt concrete surfaces and at a rate of 0.06 gallons per square yard on primed base course or new asphalt concrete pavement. The Asphalt for tack will be applied for the full width of the bottom layer of Asphalt Concrete Composite plus one-half foot additional on the outside shoulder.

All other requirements for Asphalt Concrete Composite will apply.

ASPHALT CONCRETE RESURFACING ON 193rd STREET & 200TH STREET

A paver feeder will be required when paving 193rd Street and 200th Street.

The paving will be 1.5 inches thick and match the slope and width of the existing road. A thickness of greater than 1.5 inches will not be allowed unless approved by the Engineer. All paving will be full roadway width. At the begin and end points of the paving, the Contractor will transition in and out of the paving at a rate of 40' to one inch of thickness to achieve a smooth ride.

A 1' wide sluff will be placed at the edge of the roadway, or as otherwise directed by the Engineer.

ASPHALT CONCRETE PATCHING OF 193rd ST., 425TH AVE. & 429TH AVE.

The patches will be 1.5 inches thick and match the slope and width of the existing road. A thickness of greater than 1.5 inches will not be allowed unless approved by the Engineer. The minimum length of a patch will be 120 feet. All patches will be full width. The Contractor will transition in and out of the patches at a rate of 40' to one inch of thickness to achieve a smooth ride.

By the time of construction it can be anticipated that the patch areas in the Table of Asphalt Concrete Composite Spot Patching and Asphalt Concrete Resurfacing could be larger, than at the time the table was developed. Patch areas may be lengthened, or additional patch areas may be included, at the discretion of the Engineer.

A 1' wide sluff will be placed at the edge of the roadway, or as otherwise directed by the Engineer.

A paver feeder will only be required when ordered by the Engineer.

TEMPORARY PAVEMENT MARKING

The total length of no passing zone on this project is estimated as follows:

429th Avenue: 13 zones for a total of 1.6 Miles of total zone length within spot patching locations. (Total for this route: 27 zones for a total length of 7.67 miles.)

193rd Street: 9 zones for a total length of 1.73 miles within the Asphalt Concrete Resurfacing limits. There are 5 zones for a total length of 0.85 Miles within the 1 mile limits of the Asphalt Concrete Spot Patching.

200th Street: 12 zones for a total length of 3.95 miles.

425th Avenue: 4 zones for a total of 0.2 Miles of total zone length within spot patching locations. (Total for this route: 19 zones for a total length of 3.03 miles.)

It is estimated that 58 DO NOT PASS (R4-1) and 58 PASS WITH CARE (R4-2) signs will be required to mark the no passing zones, should the Contractor elect to use these signs.

Temporary Flexible Vertical Markers (Tabs) will be used on the top lift of asphalt surfacing for centerline delineation, lane lines, skips, and as directed by the Engineer. Tabs will be offset 6-inches from the location shown for permanent pavement markings. Centerline will be double yellow lines with tabs spaced at 5' the entire project length.

Temporary flexible vertical markers (tabs) will be used to mark dashed centerline, No Passing Zones, and applicable lane lines. Paint will not be allowed for temporary pavement marking on the asphalt concrete wear course.

Covers on the tabs will be sufficiently secured to prevent traffic from dislodging the cover and when removed, the covers will be properly disposed of. The Contractor will remove and properly dispose of the tabs after permanent pavement marking is applied. Method of removal will be nondestructive to the road surface and will be accomplished within one week of completion of the permanent pavement marking.

Full reflectivity of all temporary flexible vertical markers (tabs) is required at all times. The Contractor will be required to replace any missing or non-reflective tabs at no additional cost to the State.

Quantities of Temporary Pavement Markings consist of:

One pass on top of the paved surface

In the absence of a signed lane closure or pilot car operation, FLAGGER (W20-7) symbol signs and flaggers, or a shadow vehicle with rotating yellow lights or strobe lights will be positioned on the shoulder in advance of workers for both directions of traffic during the installation and removal of the temporary flexible vertical markers (tabs). The traffic control device used will be moved intermittently to provide proper warning of the work operation. A ROAD WORK AHEAD (W20-1) sign, a WORKER (W21-1) symbol sign or a BE PREPARED TO STOP (W3-4) sign will be mounted on the rear of the shadow vehicle. The method of traffic control used by the Contractor for this work must be approved by the Engineer.

Prior to nightfall, tabs will be required to mark centerline on segments of roadway where existing centerline markings have been removed and new markings have not been installed.

PERMANENT PAVEMENT MARKING

The Contractor will be required to repaint all existing pavement markings including centerline, edge line, lane lines, and railroad crossings (4). This list is approximate. The Contractor will be required to document and be able to relocate for replacement of the existing railroad crossings before the markings are obliterated. Additional quantities are included in the estimate of quantities to paint the additional pavement marking. The cost to duplicate the existing marking locations will be incidental to the contract unit prices for the various contract items.

PAVEMENT MARKING PAINT

The Contractor will advise the Engineer a minimum of 3 weeks prior to the application of the permanent pavement marking to allow the State to check and mark the location of no passing zones.

The application of permanent pavement marking will begin no sooner than 7 calendar days following completion of final surfacing. Application of permanent pavement marking will be completed within 14 calendar days following completion of the final surfacing.

HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

All materials will be applied as per manufacturer's recommendations. High build waterborne pavement marking paint will conform to the supplemental specifications for Section 980.1 B.

Reflective media will consist of glass beads.

High Build Waterborne Pavement Marking Paint applied after October 15 must be formulated as cold-weather waterborne paint. Cold weather waterborne paint will meet the requirements of Section 980.1 C.

RATES OF MATERIALS FOR HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

Solid 4" line = 22.5 Gals/Mile
Dashed 4" line = 6.2 Gal/Mile
Glass Beads = 8 Lbs/Gal.

All cost for materials, labor and equipment necessary to furnish and install the pavement markings will be incidental to the contract unit price for the respective High Build Waterborne Pavement Marking Paint items.

TABLE OF RAILROAD CROSSING MARKINGS

Location	Quantity
Approx. ¼ mile south of SD28 in Willow Lake North side of Railroad Crossing	1
Approx. ¼ mile south of SD28 in Willow Lake South side of Railroad Crossing	1
Just north of US 14 near Manchester North side of Railroad Crossing	1
Total	3

RETROREFLECTIVITY FOR PAVEMENT MARKING PAINT

The Department may take retroreflectivity readings on the pavement marking lines after 2 days and within 30 days of the line application using either a portable or mobile retroreflectometer that conforms to 30-meter geometry. If the Department chooses to take retroreflectivity readings, three retroreflectivity readings will be taken on each line at each test location. The three readings will be averaged and become the reading for that test location.

If the Department chooses to take retroreflectivity readings, three readings will be taken on the edge lines and lane lines in the direction of application. For combination solid yellow and skip yellow lines for turn lanes and for centerline markings on two-way roadways, three readings will be taken in one direction, the reflectometer will be turned 180 degrees and three more readings will be taken. The six readings for the centerline markings will be averaged and become the test reading for that test location.

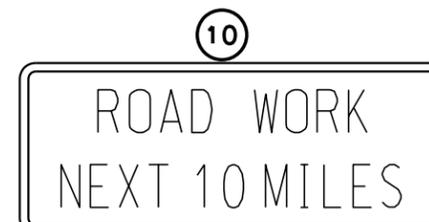
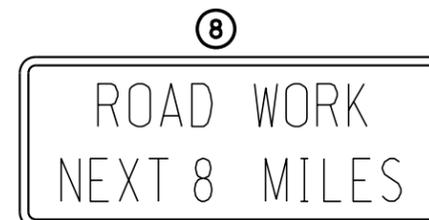
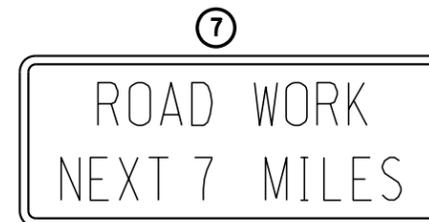
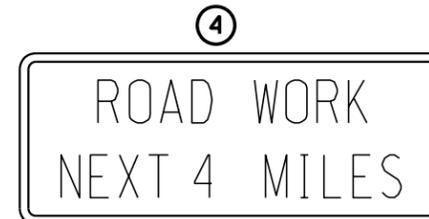
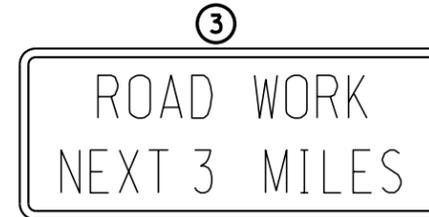
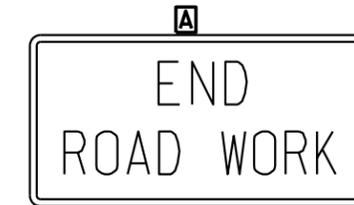
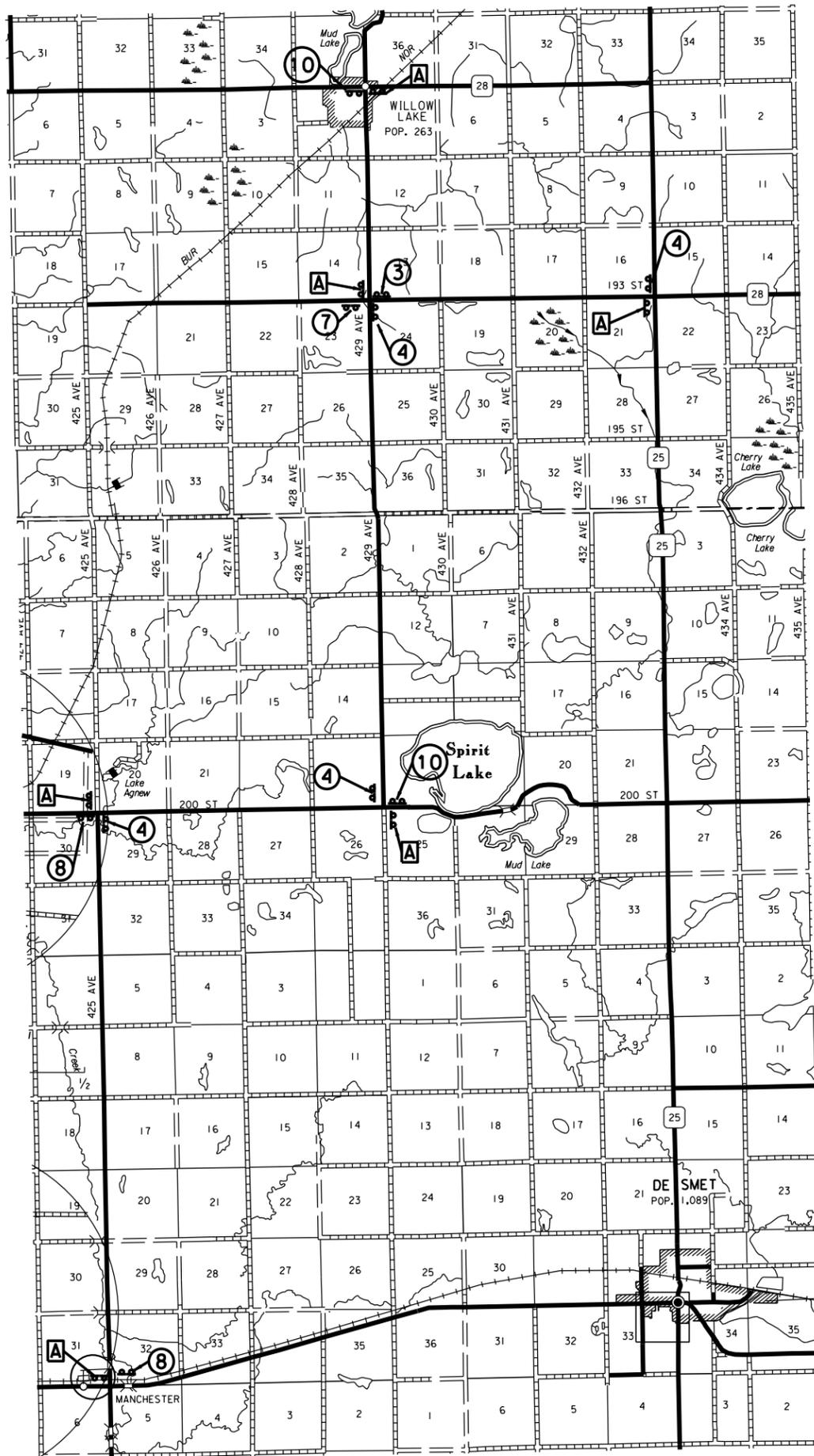
If the Department chooses to take readings, the minimum retroreflectivity values will be 275 mc/m²/lux for white and 170 mc/m²/lux for yellow.

STATE OF SOUTH DAKOTA	PROJECT	SHEET NO.	TOTAL SHEETS
	P-PH-B 0025(00)115	7	13
Plotting Date: 05/31/2022			

FIXED LOCATION SIGNS (GROUND MOUNTED BREAKAWAY SUPPORTS)

PLOT SCALE - 1:10710.4

PLOTTED FROM - TRAB17882



W20-1 ROAD WORK AHEAD signs will be mounted on portable supports and will be placed on intersecting roadways as directed by the Engineer. ROAD WORK AHEAD signs will be moved as necessary to keep current with work activities.

PLOT NAME - 2

FILE - ...FIXED SUPPORT SIGNS.DGN

Plotting Date: 05/16/2022

PLOT SCALE - 1:200

PLOT NAME - 4

* Messages on signs will vary depending on the operation being conducted.

Vehicle-mounted signs will be mounted in a manner such that they are not obscured by equipment or supplies. Sign legends on vehicle-mounted signs will be covered or turned from view when work is not in progress.

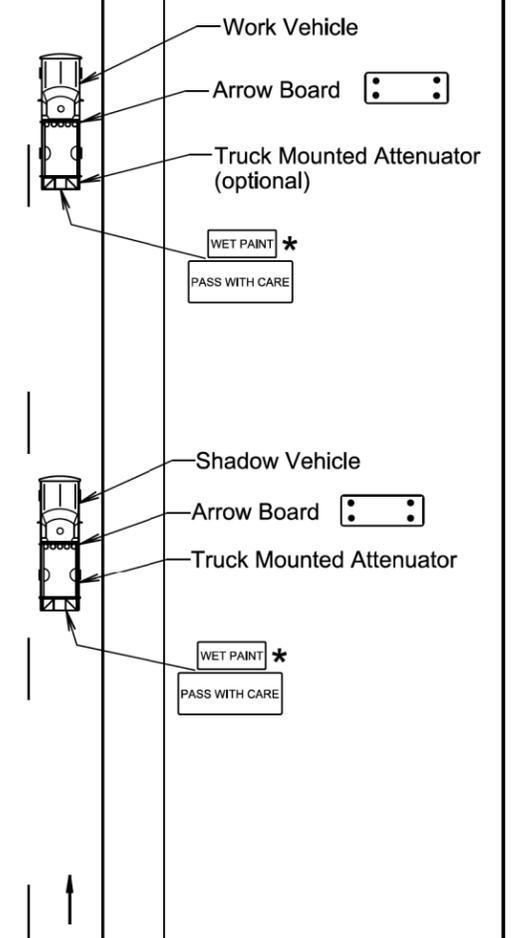
Shadow and Work vehicles will display high-intensity rotating, flashing, oscillating, or strobe lights, flags, signs, or arrow boards.

Vehicle hazard warning signals will not be used instead of the vehicle's high-intensity rotating, flashing, oscillating, or strobe lights.

When an arrow board is used, it will be used in the caution mode. Marching Diamonds are acceptable.

Arrow boards will, as a minimum, be Type B, with a size of 60" x 30".

All costs associated with the traffic control for mobile operation including signs, arrow boards and equipment will be incidental to the contract lump sum price for "Traffic Control, Miscellaneous".



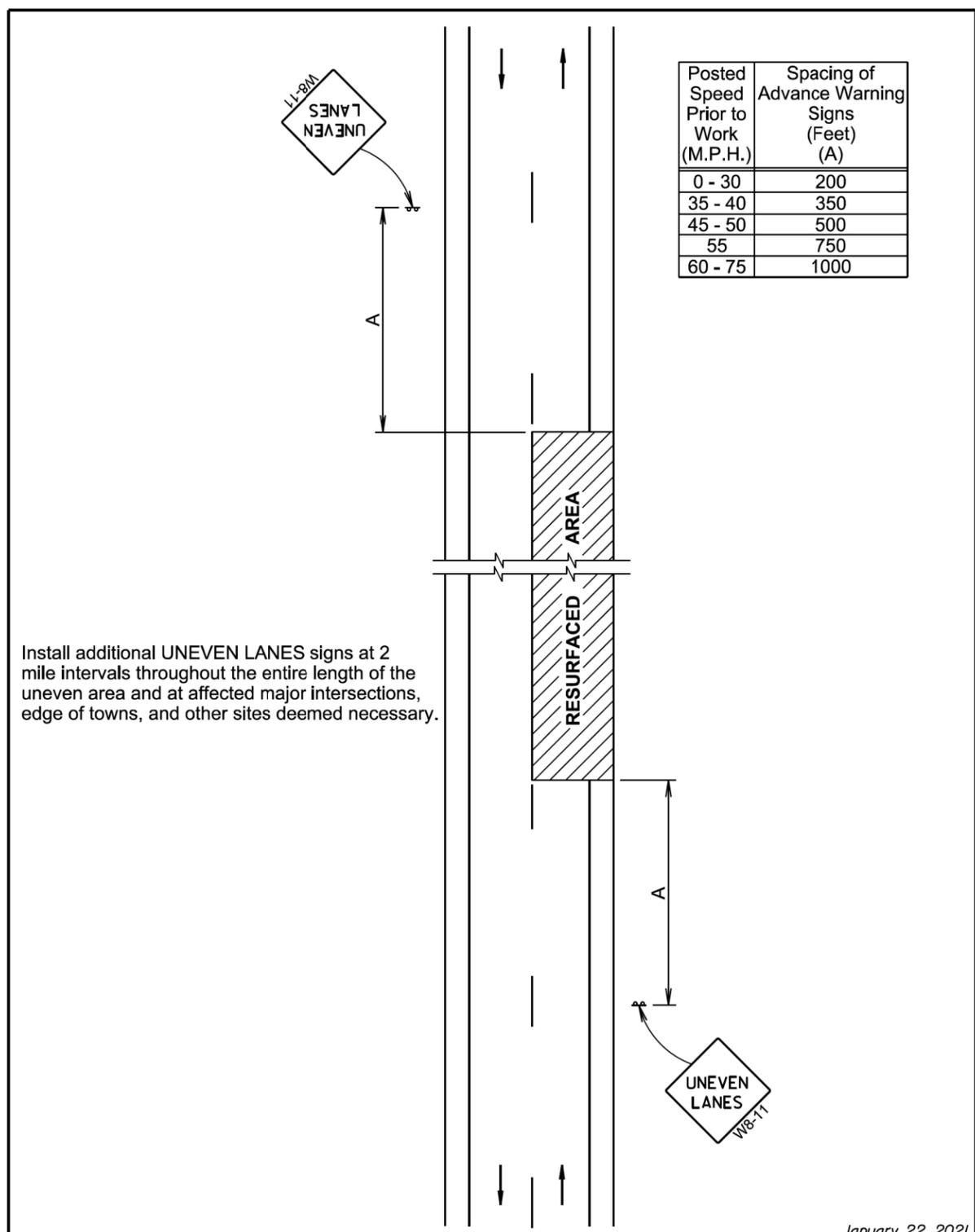
January 22, 2021

Published Date: 2nd Qtr. 2022	S D D O T	MOBILE OPERATIONS ON 2-LANE ROAD	PLATE NUMBER 634.06
			Sheet 1 of 1

-PLOTTED FROM - TRAB17882

FILE - ... \PRJ\KING\956\BLANK_ &_63406.DGN

PLOT SCALE - 1:200



Install additional UNEVEN LANES signs at 2 mile intervals throughout the entire length of the uneven area and at affected major intersections, edge of towns, and other sites deemed necessary.

January 22, 2021

S D D O T	UNEVEN ROAD SURFACE	PLATE NUMBER 634.22
		Sheet 1 of 1

Published Date: 2nd Qtr. 2022

PLOTTED FROM - TRAB17882

Posted Speed Prior to Work (M.P.H.)	Spacing of Advance Warning Signs (Feet) (A)	Spacing of Channelizing Devices (Feet) (G)
0 - 30	200	25
35 - 40	350	25
45	500	25
50	500	50
55	750	50
60 - 65	1000	50

- Flagger
- Channelizing Device

For low-volume traffic situations with short work zones on straight roadways where the flagger is visible to road users approaching from both directions, a single flagger may be used.

The ROAD WORK AHEAD and the END ROAD WORK signs may be omitted for short duration operations (1 hour or less).

For tack and/or flush seal operations, when flaggers are not being used, the FRESH OIL sign (W21-2) will be displayed in advance of the liquid asphalt areas.

Flashing warning lights and/or flags may be used to call attention to the advance warning signs.

The channelizing devices will be drums or 42" cones.

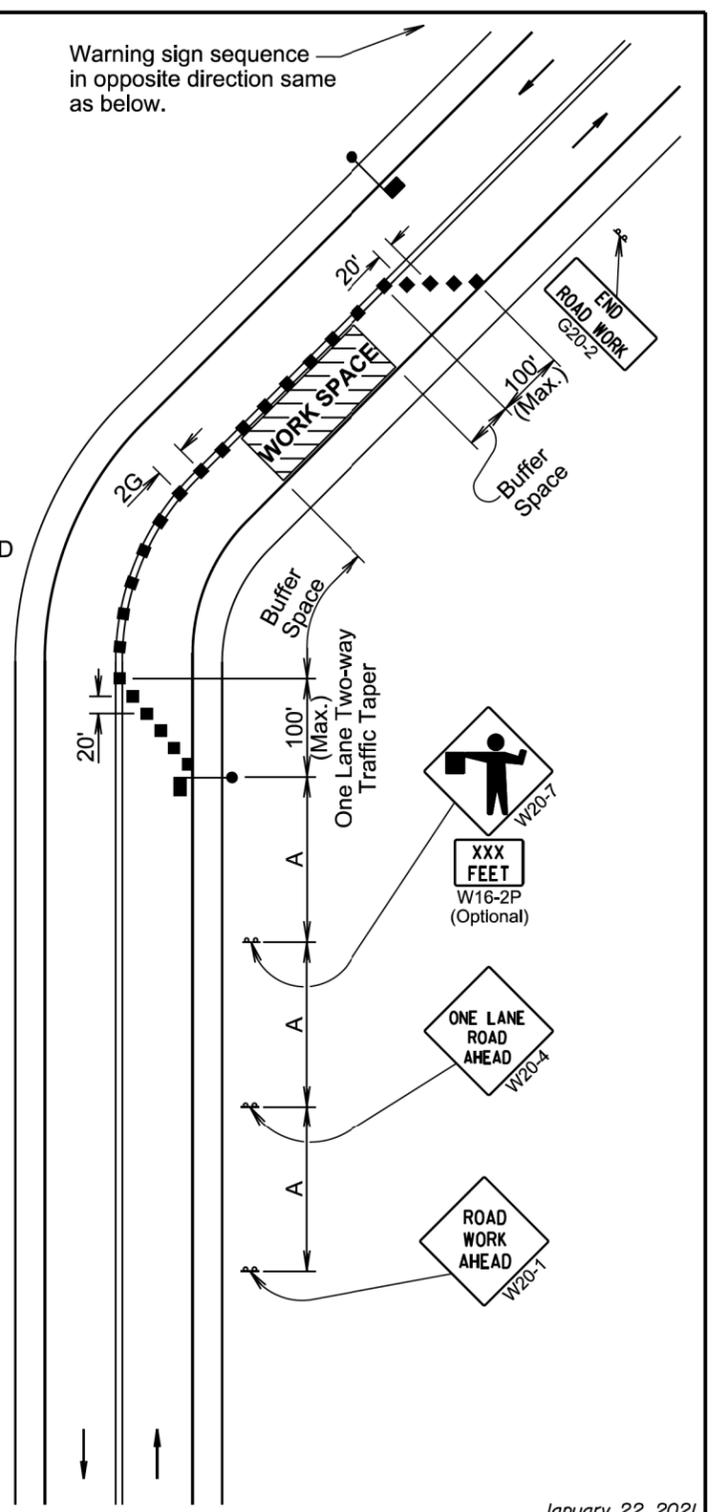
Channelizing devices are not required along the centerline adjacent to work area when pilot cars are utilized for escorting traffic through the work area.



Channelizing devices and flaggers will be used at intersecting roads to control intersecting road traffic as required.

The buffer space should be extended so that the two-way traffic taper is placed before a horizontal or vertical curve to provide adequate sight distance for the flagger and queue of stopped vehicles.

The length of A may be adjusted to fit field conditions.



Warning sign sequence in opposite direction same as below.

January 22, 2021

S D D O T	LANE CLOSURE WITH FLAGGER PROVIDED	PLATE NUMBER 634.23
		Sheet 1 of 1

Published Date: 2nd Qtr. 2022

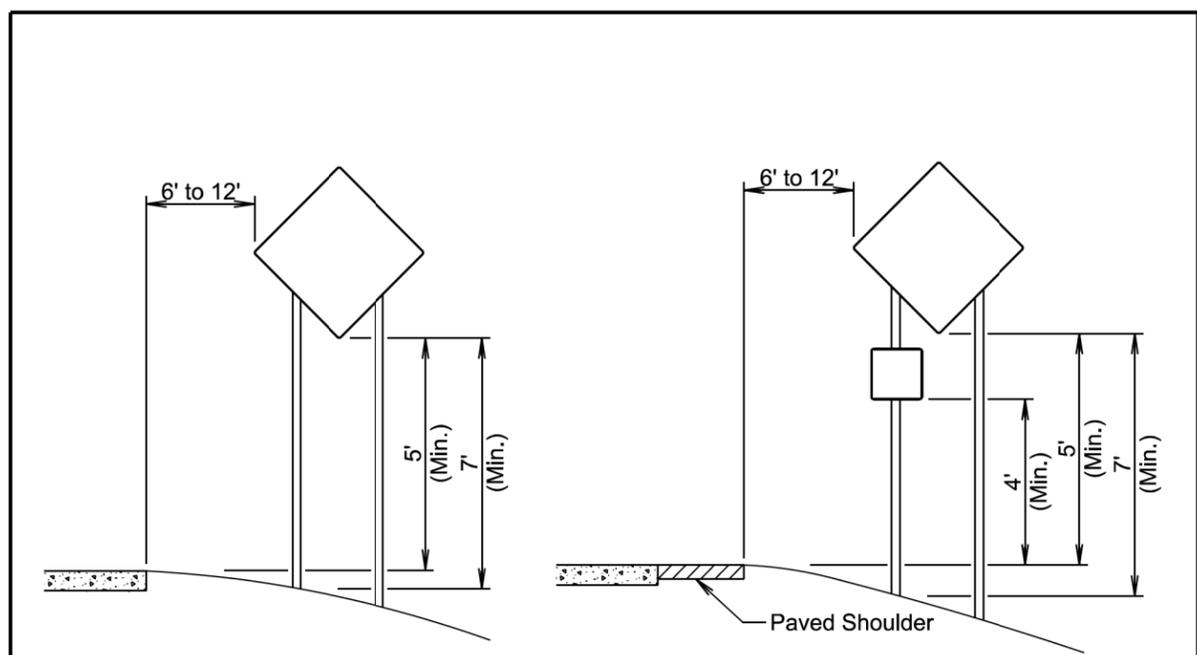
PLOT NAME - 6

FILE - ... \P\RUNK\ING0956\63422_&_63423.DGN

PLOT SCALE - 1:200

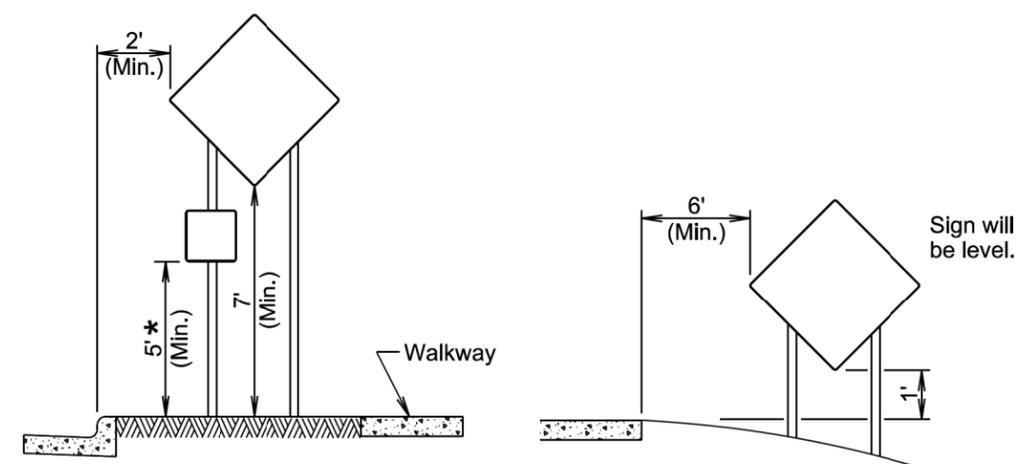
PLOT NAME - 5

FILE - ... \PRJ\KING\0956\63485_ &_ 63499.DGN



RURAL DISTRICT

RURAL DISTRICT WITH SUPPLEMENTAL PLATE



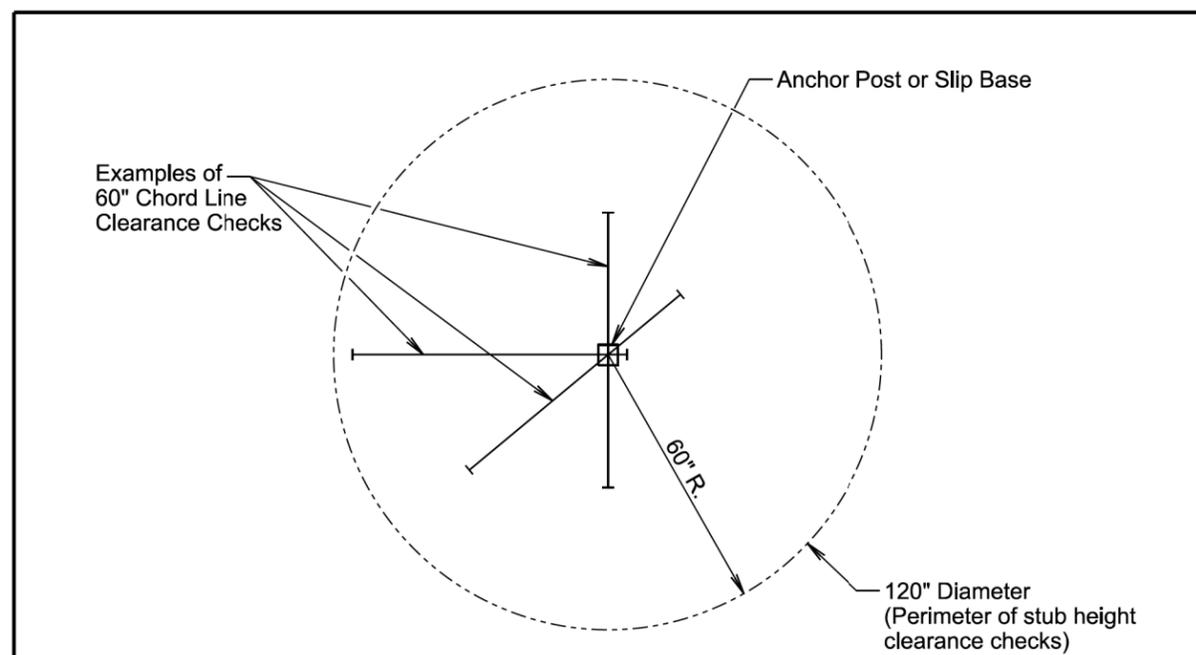
URBAN DISTRICT

RURAL DISTRICT 3 DAY MAXIMUM
(Not applicable to regulatory signs)

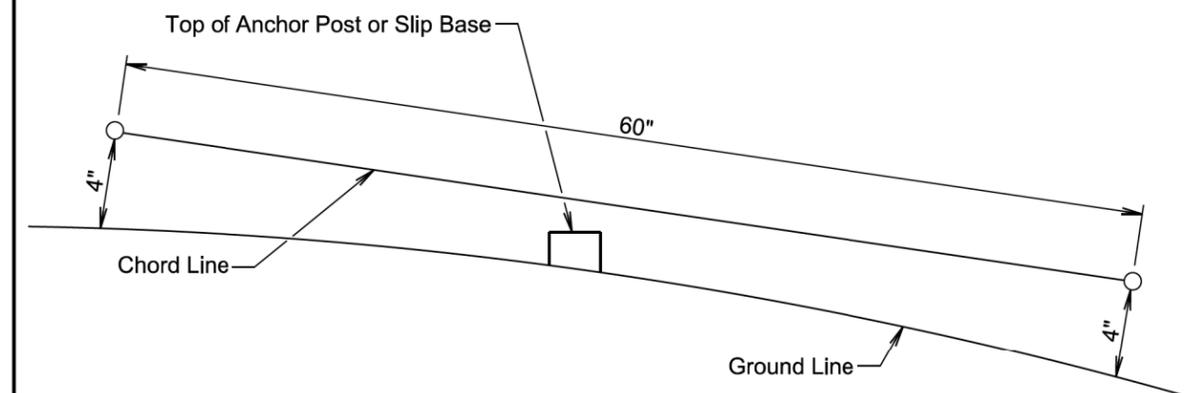
* If the bottom of supplemental plate is mounted lower than 7 feet above a pedestrian walkway, the supplemental plate should not project more than 4" into the pedestrian facility.

January 22, 2021

Published Date: 2nd Qtr. 2022	S D D O T	CRASHWORTHY SIGN SUPPORTS (Typical Construction Signing)	PLATE NUMBER 634.85
			Sheet 1 of 1



PLAN VIEW
(Examples of stub height clearance checks)



ELEVATION VIEW

GENERAL NOTES:

The top of anchor posts and slip bases WILL NOT extend above a 60" chord line within a 120" diameter circle around the post with ends 4" above the ground.

At locations where there is curb and gutter adjacent to the breakaway sign support, the stub height will be a maximum of 4" above the ground line at the localized area adjacent to the breakaway support stub.

The 4" stub height clearance is not necessary for U-channel lap splices where the support is designed to yield (bend) at the base.

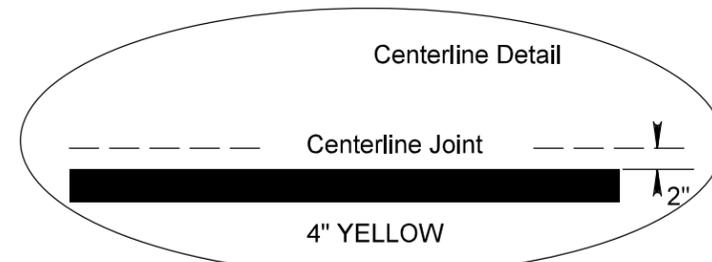
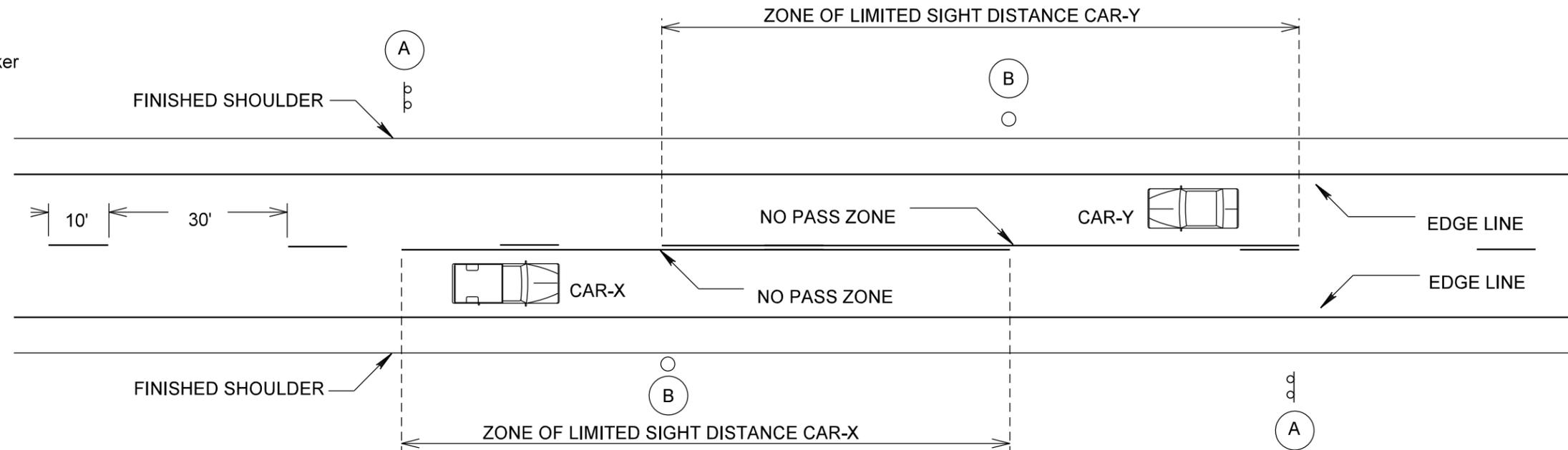
January 22, 2021

Published Date: 2nd Qtr. 2022	S D D O T	BREAKAWAY SUPPORT STUB CLEARANCE	PLATE NUMBER 634.99
			Sheet 1 of 1

TYPICAL PAVEMENT MARKING LAYOUT

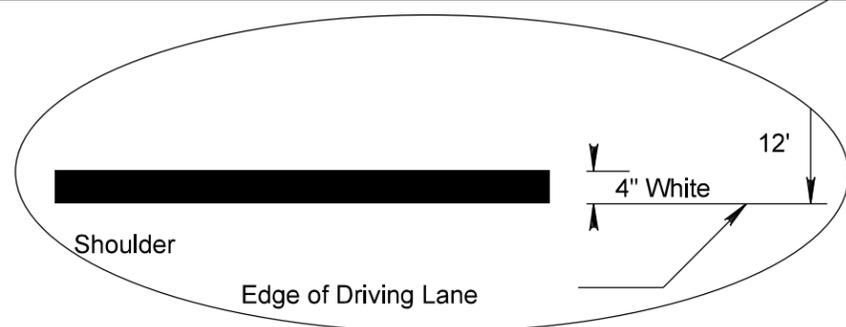
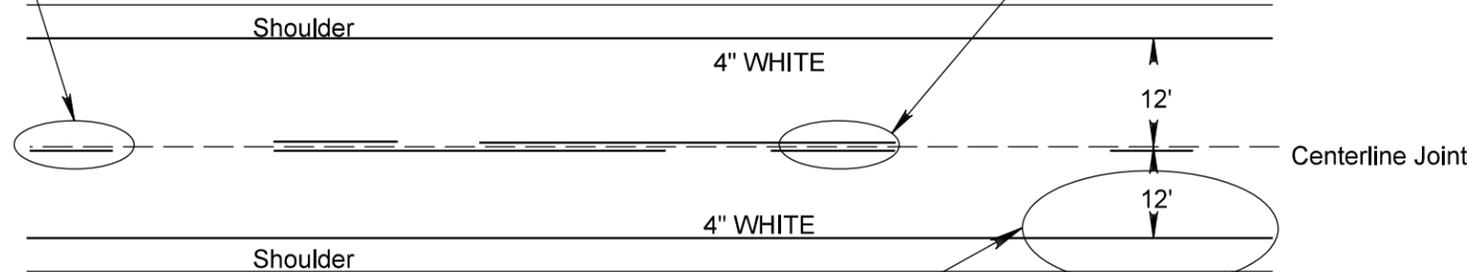
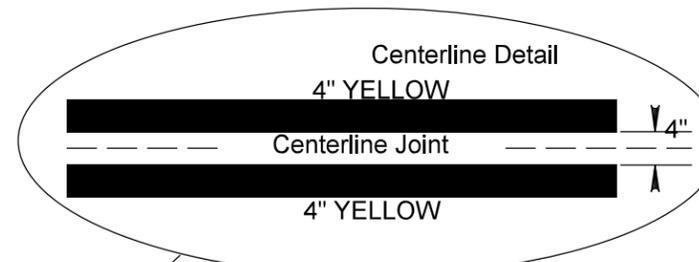


B End of Zone Marker



NOTE: A TWO "GUN" SYSTEM WILL BE USED TO OBTAIN THIS PATTERN.

WHEN A SINGLE SKIP LINE EXISTS, THE SKIP WILL BE PLACED TO THE SOUTH OR EAST OF THE CENTERLINE JOINT.



FURNISHING AND APPLYING HIGH BUILD WATERBORNE PAVEMENT MARKING PAINT

1. The approximate paint application rates will be as follows:

- Undivided Roadway
- Dashed 4" Line
6.2 Gallons/Pass-Mile
- Solid 4" Line
22.5 Gallons/Pass-Mile

2. The typical pavement markings as shown on this sheet will be applied throughout the entire length of the project.

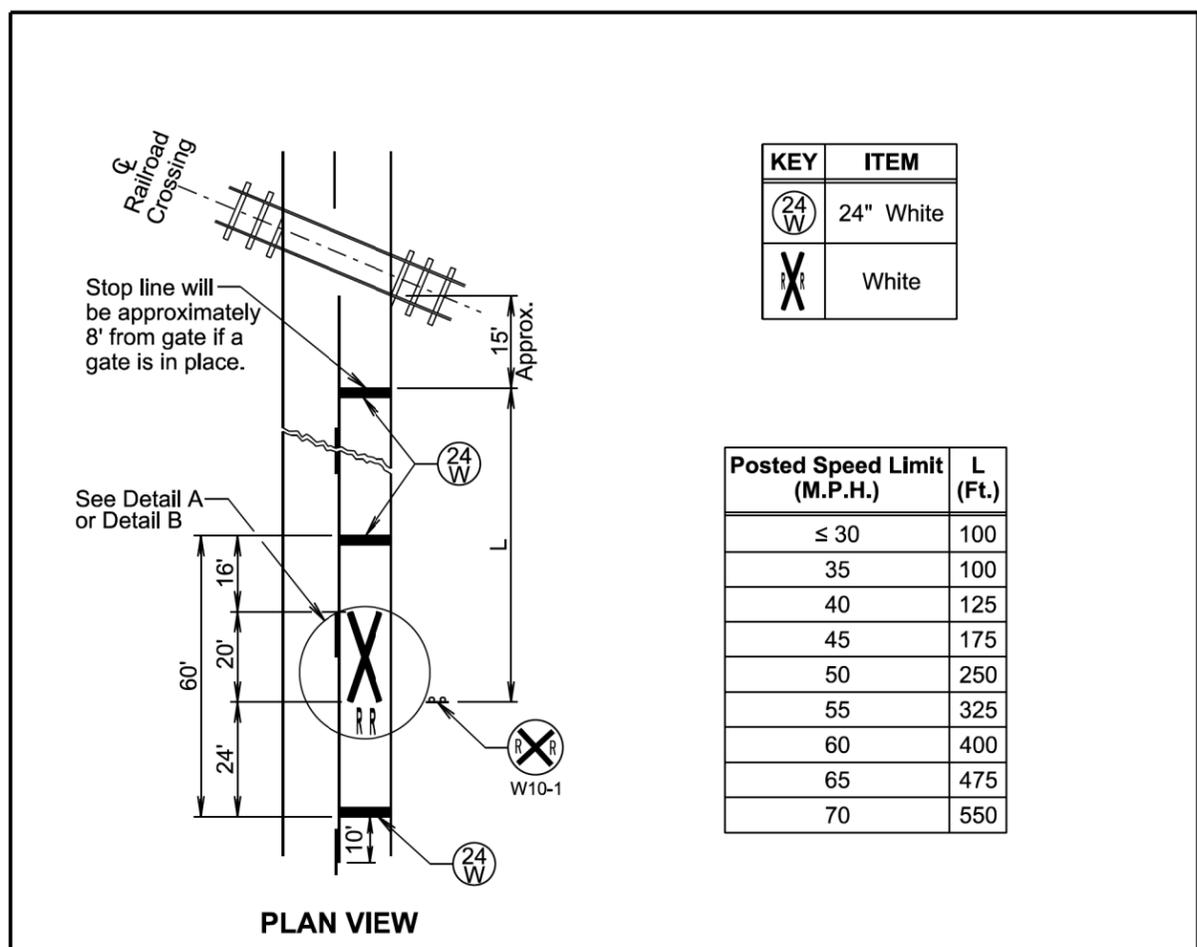
3. Exact location of the NO PASSING ZONE lines will be determined in the field by the Engineer. A dash of white paint will mark the beginning and end of all no passing zones. NO PASSING ZONE signs and the ending post in fence lines, if present, will not be used as the beginning and ending NO PASSING ZONE lines.

4. Traffic Control will be incidental to the cost of application. The striper and advance or trailing warning vehicle will be equipped with flashing amber lights or advance warning arrow panel.

PLOT SCALE - 1:200

PLOT NAME - 8

FILE - ... \PRJ\KING\956\63310_&_63310.DGN



PLAN VIEW

GENERAL NOTES:

The railroad crossing pavement markings will be placed symmetrically about the centerline of the railroad crossing. DETAIL A should be used unless the railroad crossing pavement markings are installed in existing grooves that match DETAIL B.

When pavement markings are used, a portion of the RXR symbol will be placed directly opposite of the advance warning sign W10-1.

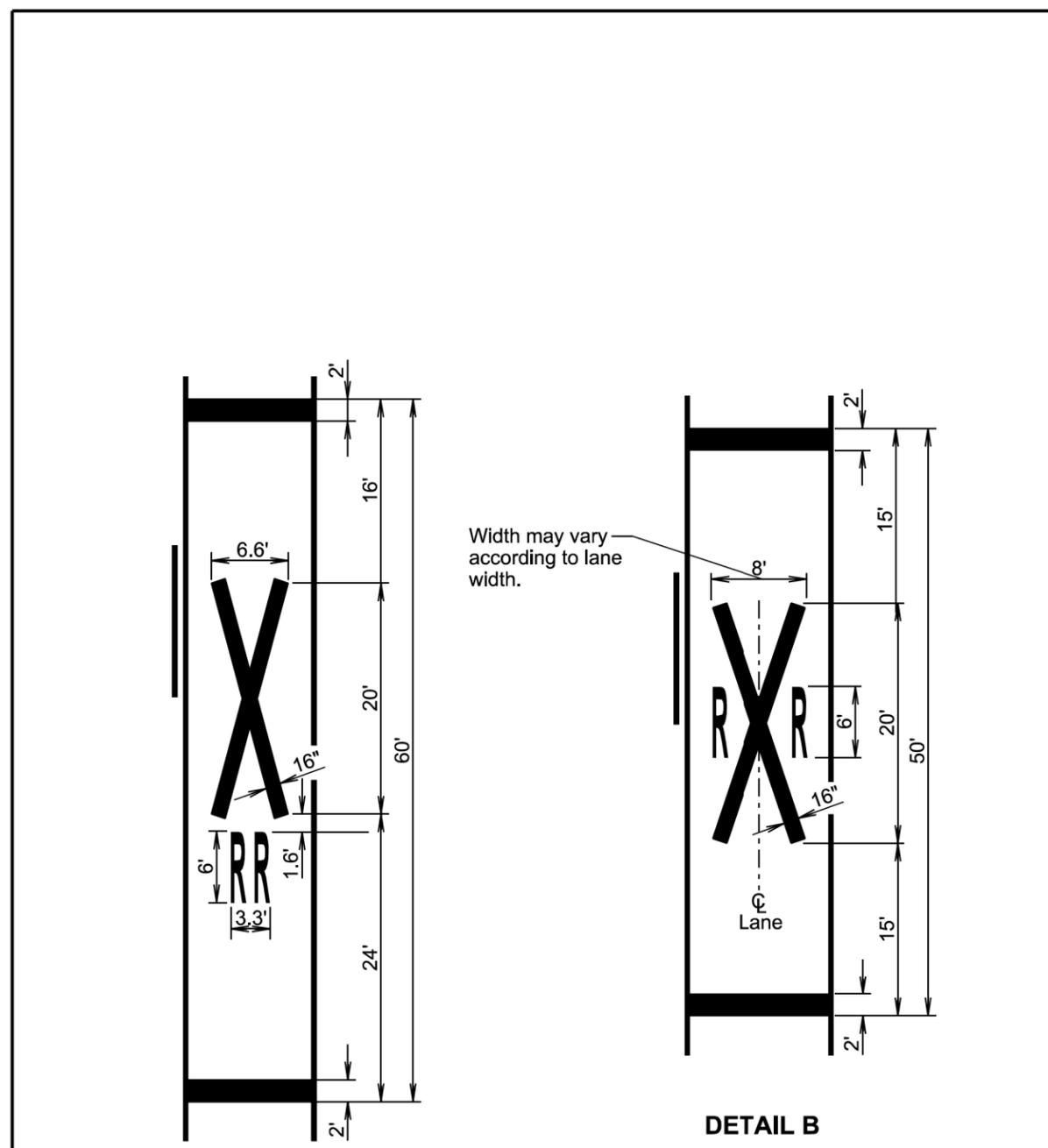
On multi-lane roads the transverse bands will extend across all approach lanes and individual RXR symbols will be placed in each approach lane.

The railroad crossing pavement markings will consist of all the transverse bands, stop lines, and RXR symbols.

All costs for furnishing and installing the markings, materials, labor, and necessary equipment for the railroad crossing markings will be paid for at the contract unit price per gallon or per each for the type of marking material specified in the plans.

November 19, 2020

Published Date: 2nd Qtr. 2022	S D D O T	PAVEMENT MARKINGS AT RAILROAD CROSSING	PLATE NUMBER 633.10
			Sheet 1 of 2



DETAIL A

DETAIL B

November 19, 2020

Published Date: 2nd Qtr. 2022	S D D O T	PAVEMENT MARKINGS AT RAILROAD CROSSING	PLATE NUMBER 633.10
			Sheet 2 of 2